IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1.-6.   (canceled).

7.   (currently amended)   A method for implementing an iterative reconstruction of a computed tomography (CT) image, the method comprising:

during each of a plurality of iterations, generating a reconstructed image;

constraining said reconstructed image at each successive iteration by utilizing prior outer edge information obtained from a modality in addition to CT;

transforming said constrained reconstructed image to a projection domain so as to generate a calculated sinogram; [[and]]

determining at least one of a correction image and a corrected image based on said calculated sinogram and a measured sonogram[[.]]; and

displaying the corrected image.

8.   (currently amended)   The method of claim 7, wherein said modality in addition to CT further comprises one of: a coordinate measuring machine (CMM), a micrometer, and a laser-based measurement system.

9.   (previously presented)   The method of claim 8, further comprising:

following completion of said plurality of iterations, using a resulting completed reconstructed image and said prior outer edge information to generate a 3D point cloud of the CT image.

10.   (previously presented)   The method of claim 7, wherein said generating a reconstructed image is implemented through at least one of: an iterative filtered back projection (FBP) algorithm, a maximum a posteriori probability (MAP) algorithm, a maximum likelihood (ML) algorithm, an algebraic reconstruction technique (ART) algorithm, an entropy-based algorithm, a least squares (LS) algorithm, and a penalized weighted least squares (PWLS) algorithm.

11.   (currently amended)   A method for implementing an iterative reconstruction of a computed tomography (CT) image, the method comprising:

during each of a plurality of iterations, generating a reconstructed image;

constraining said reconstructed image at each successive iteration utilizing prior outer edge information obtained from a modality in addition to CT and transforming said constrained reconstructed image to a projection domain so as to generate a calculated sinogram; and

determining at least one of a correction image or a corrected image based on said calculated sinogram and a measured sinogram; and

displaying the corrected image;

wherein the iterative reconstruction utilizes a forward projection in determining said calculated sinogram.

12.   (original)   The method of claim 11, wherein said modality in addition to CT further comprises one of: a coordinate measuring machine (CMM), a micrometer, and a laser-based measurement system.

13.   (previously presented)   The method of claim 12, further comprising:

following completion of said plurality of iterations, using a resulting completed reconstructed image and said prior outer edge information to generate a 3D point cloud of the CT image.

14.   (original)   The method of claim 11, wherein said generating a reconstructed image is implemented through at least one of: an iterative filtered back projection (IFBP) algorithm, a maximum a posteriori probability (MAP) algorithm, a maximum likelihood (ML) algorithm, an algebraic reconstruction technique (ART) algorithm, an entropy-based algorithm, a least Squares (LS) algorithm, and a penalized weighted least squares (PWLS) algorithm.

15.   (previously presented)   The method of claim 11, wherein said forward projection includes using a polychromatic x-ray acquisition model.

16.   (original)   The method of claim 15, wherein using a polychromatic x-ray acquisition model further comprises:
    decomposing a linear attenuation coefficient into a photoelectric component and a Compton scatter component; and
    constraining a relative weight of said photoelectric component and said Compton scatter component based on prior material assumptions.

17.   (previously presented)   The method of claim 11, wherein said forward projection includes incorporating finite x-ray beamwidth considerations, said finite x-ray beamwidth considerations including at least one of detector point-spread function, detector aperture, detector cross-talk, focal-spot size, off-focal radiation, azimuthal blur, and detector memory effects.

18.   (previously presented)   The method of claim 11, wherein said forward projection includes incorporating scattered radiation considerations.

19.   (currently amended)   A storage medium, comprising:
    a machine readable computer program code for implementing an iterative reconstruction of a computed tomography (CT) image; and

instructions for causing a computer to implement a method, the method further comprising:

during each of a plurality of iterations, generating a reconstructed image;

modifying said reconstructed image at each successive iteration by utilizing prior outer edge information obtained from a modality in addition to CT;

transforming said modified, reconstructed image to a projection domain so as to generate a calculated sinogram; and

determining at least one of a correction image and a corrected image based on said calculated sinogram and a measured sinogram; and

displaying the corrected image;

wherein the iterative reconstruction utilizes forward projection constraints in determining said calculated sinogram.

20.   (currently amended)   A computed tomography (CT) reconstruction method, the method comprising:

implementing an iterative image reconstruction process for CT metrology of an object, wherein said iterative reconstruction process utilizes prior outer edge information at each successive iteration obtained from a modality in addition to CT[[.]]; and

displaying an image created by the iterative reconstruction process.